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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,840	09/28/2001	Erich K. Erdle	225/50450	3733

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EXAMINER	
KALAFUT, STEPHEN J	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary	Application No.	Applicant(s)	
	09/964,840	ERDLE ET AL.	
	Examiner	Art Unit	
	Stephen J. Kalafut	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claims 11 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "high pressure" in claim 11 is a relative term which renders the claim indefinite. The term "high" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. By contrast, claims 6, 7 and 12 recite "high pressure" and actual values for the amount of pressure. Claim 13 depends from claim 11, and unlike claim 12 does not recite any pressure values, and would also be indefinite.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Araoka *et al.* (Japanese 9-139,217).

These claims are drawn to a power supply "for an auxiliary power unit of a vehicle" (emphasis added), and are thus understood as not requiring the vehicle to be present. Araoka *et al.* disclose a fuel cell system which includes a fuel cell (12) into which hydrogen and oxygen are fed, and which includes exhaust conduits; a water electrolyzer (1), which produces hydrogen and oxygen from water and electricity (section 0009); a hydrogen storage tank (10) which stores hydrogen produced by the electrolyzer and supplies it to the fuel cell (section 0010); a water

supply tank (3) which provides water for the electrolyzer (section 0009) via a pressuring pump (2). This would be the present "pressure pump". Recitations of other vehicle parts, such as a generator and electricity supplied thereby are not given patentable weight, since these claims are understood to be drawn to the power supply *per se*. Regarding claim 4, Araoka *et al.* also disclose condensers (8a, 8b) for separating water from the fuel cell exhaust (section 0010). Regarding claim 5, the tank (3) would constitute a water buffer tank, since it contains water which is produced by the fuel cell and sent to the electrolyzer. Regarding claim 9, an oxygen storage tank (13) receives oxygen from the electrolyzer (section 0011). Regarding claim 10, a compressor (9a) is arranged between the electrolyzer and the hydrogen tank (section 0008).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araoka *et al.*, above.

These claims differ form Araoka *et al.* by reciting pressures for the electrolyzer operation and for the hydrogen storage tank. Because pressure would have an effect on the amount of hydrogen which may be produced and stored, where higher pressure would increase these values, while lower pressure would render the system safer, determining an optimal pressure for these

components would be a matter within the skill of the ordinary artisan. Thus, these claims would be obvious over Araoka *et al.*

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araoka et al. in view of Strasser *et al.* (US 6,068,942).

This claim differs from Araoka *et al.* by reciting a dc/dc converter, an ac/dc converter or an electric control. Since this claim is understood not to require that the vehicle is present, recitations of parts thereof other than the power supply are not given weight. Strasser *et al.* disclose a fuel cell system which includes an inverter (6), a type of ac/dc converter, which enables the fuel cell to power alternating current devices, or to contribute power to an electrical network (10). For these reasons, it would be obvious to use the inverter of Strasser *et al.* with the fuel cell of Araoka *et al.*

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araoka *et al.* in view of Buswell *et al.* (US 5,360,679).

This claim differs from Araoka *et al.* by reciting a water purifying device between the water tank and the electrolyzer. Buswell *et al.* disclose a water tank (192) and a water purifying charcoal bed (194), which purifies the water from the tank before it is sent on to various parts of the fuel cell system (column 11, lines 31-50). To eliminate any detrimental effects arising from impurities, it would be obvious to use a water purifying unit as disclosed by Buswell *et al.* immediately downstream from the water tank of Araoka *et al.*

Claims 3 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araoka *et al.* in view of Kagitani (US 5,900,330)

Claim 3 differs from Araoka *et al.* by reciting that the electrolyzer comprises a reversible fuel cell, and may be operated both as a fuel cell and as an electrolyzer. Kagitani discloses an electrochemical cell (10) which may be operated either as a fuel cell or as an electrolyzer (column 8, lines 7-16). Because the reversible operation would allow the system to be activated by a single electric charge (column 8, lines 7-10) and removes the need for the dangerous exchanging or refilling of hydrogen fuel tanks (column 10, lines 6-10), and because this reversible cell would contribute to the electrical output of the system (column 9, lines 45-50), it would be obvious to use a reversible electrolysis/fuel cell as shown by Kagitani as the electrolysis cell in the system of Araoka *et al.*

Claims 11-14 differ from Araoka *et al.* in requiring the actual vehicle to be present. Because Kagitani teaches his system as useful in vehicles (column 9, lines 59-67), because a reversible system would be cost efficient due to its ability to use low-cost electricity (column 9, lines 9-13), and because a reversible system would be able to use power created during the operation of the vehicle (column 4, lines 66-68), it would be obvious to use the system of Araoka *et al.* to power a vehicle as taught by Kagitani.

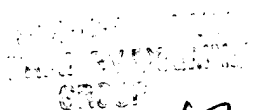
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maricle (US 4,128,701), Sprouse (US 5,306,577) and Deguchi *et al.* (JP 6-163,064) disclose reversible fuel cells. Levy *et al.* (US 4,797,186) and Gardner (US 5,527,632) disclose fuel cell systems which include electrolysis cells.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is (703) 308-0433. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

sjk
April 24, 2003



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